

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: M. Goosey et al.
Application No.: 09/172,533 Group No.: 1762
Filed: October 14, 1998 Examiner: B. Talbot
For: ELECTROLESS METAL PLATING

Assistant Commissioner for Patents
Washington, D.C. 20231

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION—37 C.F.R. § 1.192)

1. Transmitted herewith, in triplicate, is the APPEAL BRIEF in this application, with respect to the Notice of Appeal filed on _____

NOTE: "Appellant must, within two months from the date of the notice of appeal under § 1.191 or within the time allowed for reply to the action from which the appeal was taken, if such time is later, file a brief in triplicate. . . ." 37 C.F.R. § 1.192(a) (emphasis added).

2. STATUS OF APPLICANT

This application is on behalf of

- ☒ other than a small entity.
☐ a small entity.

A statement:

- ☐ is attached.
☐ was already filed.

RECEIVED

FEB 12 2002

OFFICE OF PETITIONS

CERTIFICATION UNDER 37 C.F.R. §§ 1.8(a) and 1.10*

(When using Express Mail, the Express Mail label number is mandatory;
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I hereby certify that, on the date shown below, this correspondence is being:

MAILING

- ☒ deposited with the United States Postal Service in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

37 C.F.R. § 1.8(a)

37 C.F.R. § 1.10 *

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- ☐ facsimile transmitted to the Patent and Trademark Office, (703) _____

January 20, 2002

Date: _____

Signature

Peter F. Corless

(type or print name of person certifying)

* Only the date of filing (§ 1.6) will be the date used in a patent term adjustment calculation, although the date on any certificate of mailing or transmission under § 1.8 continues to be taken into account in determining timeliness. See § 1.703(f). Consider "Express Mail Post Office to Addressee" (§ 1.10) or facsimile transmission (§ 1.6(d)) for the reply to be accorded the earliest possible filing date for patent term adjustment calculations.

(Transmittal of Appeal Brief [9-6.1]—page 1 of 3)

3. FEE FOR FILING APPEAL BRIEF

Pursuant to 37 C.F.R. § 1.17(c), the fee for filing the Appeal Brief is:

- ☐ small entity \$160.00
☒ other than a small entity \$320.00

Appeal Brief fee due \$ 320.00

4. EXTENSION OF TERM

NOTE: 37 C.F.R. § 1.704(b) ". . . an applicant shall be deemed to have failed to engage in reasonable efforts to conclude processing or examination of an application for the cumulative total of any periods of time in excess of three months that are taken to reply to any notice or action by the Office making any rejection, objection, argument, or other request, measuring such three-month period from the date the notice or action was mailed or given to the applicant, in which case the period of adjustment set forth in § 1.703 shall be reduced by the number of days, if any, beginning on the day after the date that is three months after the date of mailing or transmission of the Office communication notifying the applicant of the rejection, objection, argument, or other request and ending on the date the reply was filed. The period, or shortened statutory period, for reply that is set in the Office action or notice has no effect on the three-month period set forth in this paragraph."

NOTE: The time periods set forth in 37 C.F.R. § 1.192(a) are subject to the provision of § 1.136 for patent applications. 37 C.F.R. § 1.191(d). See also Notice of November 5, 1985 (1060 O.G. 27).

NOTE: As the two-month period set in § 1.192(a) for filing an appeal brief is not subject to the six-month maximum period specified in 35 U.S.C. § 133, the period for filing an appeal brief may be extended up to seven months. 62 Fed. Reg. 53,131, at 53,156; 1203 O.G. 63, at 84 (Oct. 10, 1997).

The proceedings herein are for a patent application and the provisions of 37 C.F.R. § 1.136 apply.

(complete (a) or (b), as applicable)

- (a) ☐ Applicant petitions for an extension of time under 37 C.F.R. § 1.136 (fees: 37 C.F.R. § 1.17(a)(1)-(5)) for the total number of months checked below:

Extension (months)	Fee for other than small entity	Fee for small entity
<input type="checkbox"/> one month	\$ 110.00	\$ 55.00
<input type="checkbox"/> two months	\$ 400.00	\$ 200.00
<input type="checkbox"/> three months	\$ 920.00	\$ 460.00
<input type="checkbox"/> four months	\$ 1,440.00	\$ 720.00
<input type="checkbox"/> five months	\$ 1,960.00	\$ 980.00

Fee: \$ _____

If an additional extension of time is required, please consider this a petition therefor.

(check and complete the next item, if applicable)

- ☐ An extension for _____ months has already been secured, and the fee paid therefor of \$ _____ is deducted from the total fee due for the total months of extension now requested.

Extension fee due with this request \$ _____

or

- (b) ☐ Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

5. TOTAL FEE DUE

The total fee due is:

Appeal brief fee \$ 320.00

Extension fee (if any) \$ _____

TOTAL FEE DUE \$ 320.00

6. FEE PAYMENT

☒ Attached is a ☒ check ☐ money order in the amount of \$ 320.00

☐ Authorization is hereby made to charge the amount of \$ _____

☐ to Deposit Account No. _____

☐ to Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should **not** be included on this form as it may become public.

☐ Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

A duplicate of this paper is attached.

7. FEE DEFICIENCY

NOTE: If there is a fee deficiency and there is no authorization to charge an account, additional fees are necessary to cover the additional time consumed in making up the original deficiency. If the maximum six-month period has expired before the deficiency is noted and corrected, the application is held abandoned. In those instances where authorization to charge is included, processing delays are encountered in returning the papers to the PTO Finance Branch in order to apply these charges prior to action on the cases. Authorization to change the deposit account for any fee deficiency should be checked. See the Notice of April 7, 1986, 1065 O.G. 31-33.

☒ If any additional extension and/or fee is required,

AND/OR

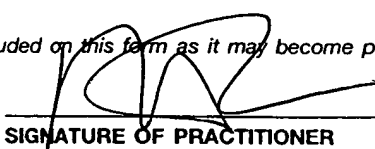
☒ If any additional fee for claims is required, charge:

☒ Deposit Account No. 04-1105

☐ Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should **not** be included on this form as it may become public.

Date:


SIGNATURE OF PRACTITIONER
Peter F. Corless

Reg. No.: 33860

(type or print name of practitioner)

EDWARDS & ANGELL, LLP

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(Transmittal of Appeal Brief [9-6.1]—page 3 of 3)



Docket No. 50278

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THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: M. Goosey et al.

SERIAL NO.: 09/172,533

GROUP: 1762

FILED: October 14, 1998

EXAMINER: B. Talbot

FOR: ELECTROLESS PLATING PROCESS

#13
Indy
3/11/02

THE HONORABLE COMMISSIONER OF PATENTS AND TRADEMARKS
WASHINGTON, DC 20231

SIR:

APPEAL BRIEF

Applicant respectfully appeals the decision of the Examiner, dated October 14, 2000, finally rejecting claims 1-34.

This brief is being filed in triplicate. The requisite fee for filing this brief is enclosed herewith.

02/12/2002 AWONDAF1 00000023 09172533

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I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Shipley Company L.L.C., the assignee of the application.

II. RELATED APPEALS AND INTERFERENCES

To the knowledge of the undersigned, there are no current appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-34 have been presented in this application.

Claims 1-34 have been finally rejected and presently are on appeal (see the attached Appendix).

IV. STATUS OF AMENDMENTS (AFTER FINAL REJECTION)

No amendments under 37 CFR 1.116 have been submitted.

V. SUMMARY OF THE INVENTION

Appellant's claimed invention is directed to processes for plating on substrate surfaces, particularly polymeric surfaces, without the need for additional steps required by prior approaches, such as steps of neutralization, conditioning and/or tin/palladium catalyzation steps. See the present application at page 1, lines 13-16.

The processes of the invention are based in part upon the use of electrochemically or otherwise generated metal ion (e.g. Ag^{2+} or Co^{3+}), referred to herein as metal activators. See the present application at page 1, lines 19-21.

Independent claim 18 reads as follows:

Claim 18. A process for metal deposition, the process comprising
providing an aqueous solution comprising a metal activator that comprises silver
(II),

contacting a part to be plated with the aqueous solution of the metal activator for a time sufficient for the metal activator to adsorb onto the part,

contacting the part with a reducing agent capable of reducing the metal activator to a lower oxidation state, and metal plating the part by contact with a plating solution.

The invention is particularly useful in the manufacture of present circuit boards. The methods of the invention are also particularly useful for plating a variety of polymers with metal e.g., copper, silver, nickel, gold, tin, cobalt, etc. for subsequent use in other applications where molded plastic parts are used, e.g. to produce decorative parts such as perfume bottle tops and in decorative automobile parts, and for electromagnetic interference (EMI) shielding applications. See the application at page 2, lines 6-12.

In preferred aspects of the invention, the metal activator is first oxidized to a higher oxidation state and then the oxidized metal activator is contacted onto the part to be plated. See the application at the paragraph bridging pages 1-2. Independent claim 28 is illustrative of this aspect of Appellant's invention.

Claim 28. A process for metal deposition, comprising
oxidizing an aqueous solution comprising a metal activator,
contacting a part to be plated with the aqueous solution of the oxidized metal activator for
a time sufficient for the metal activator to adsorb onto the part; and
contacting the part with a reducing agent capable of reducing the metal activator to a
lower oxidation state, and metal plating the part by contact with a plating solution.

VI. ISSUE

A single issue is on appeal:

Whether claims 1-34 are unpatentable under 35 U.S.C. §103 over Feldstein (U.S. Patent 4,321,285) in view of Kunzig (U.S. Patent 4,298,636).

VII. GROUPING OF THE CLAIMS

The rejected claims do *not* stand or fall together since each claim is considered separately patentable in its own right.

Appellant believes that all of the claims under appeal are separately patentable for the reasons set forth in the argument section which follows.

*
↓
No
Reasons

VIII. ARGUMENT

1. **Brief summary**

A single Section 103 rejection based on two documents is outstanding in this case. The rejection cannot be sustained.

In the Final Office Action, it is specifically acknowledged that the primary citation of Feldstein (U.S. Patent 4,321,285) does not suggest Appellant's claimed invention. However, the position is taken that selected aspects of the Kunzig document (U.S. Patent 4,298,636) would have been obvious to incorporate into the Feldstein system and that combination would render Appellant's invention obvious.

That combination just does not withstand scrutiny. The two applied citations are to disparate systems and no incentive would have existed to make the combination, or to expect that a workable system would be provided.

In fact, the citations expressly *teach against* the combination of record.

2. **Discussion**

It is acknowledged that neither of the cited documents alone renders obvious Appellant's claimed invention.

The position is nevertheless taken that it would have been obvious to carefully select and combine isolated features of the Feldstein and Kunzig documents and that combination. In particular, the following is stated at pages 2-3 of the Final Office Action (paper number 9):

Feldstein (4,321,285) fails to teach a non-colloidal metal activator and specific metals utilized for the activator.

Kunzig (4,298,636) teaches process for activating plastic surfaces for metallization by depositing noble metal complexes and reducing them to metal nuclei, .e. reducing them to a lower oxidation states.

* * *

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Feldstein (4,321,285) process by utilizing an activating solution as opposed to a colloid because of the expectation of achieving the expected results, i.e. an activated substrate.

With respect to the use of silver II vs. silver I, it is the Examiner's position that one skilled in the art would have had a reasonable expectation of achieving similar success regardless of the valence of the catalytic silver as long as the silver is reduced to a zero valence state, i.e. metallic, so as to achieve a catalytic state.

Thus, as specifically acknowledged in the Final Office Action, the primary citation of the Feldstein patent is directed to a colloid system.

The secondary citation of Kunzig does not remedy such deficiencies of Feldstein. Indeed, the skilled worker would have had absolutely no incentive to attempt to incorporate carefully selected aspects of that non-colloidal system into the colloidal system reported by Feldstein.

Feldstein further specifically teaches against the proposed combination. For instance, Feldstein states (column 3, lines 6-8):

It is another object to provide a process of the nature of which the necessity of using noble metals is eliminated.

Kunzig, hover, is specifically directed to use of noble metals. Thus, Kunzig states the following (column 1, lines 45-52; bold emphasis added)

It is another object to activate plastic surfaces for subsequent metallization with **noble metal** nuclei by a process which employs nonpolluting materials which can be handled without excessive expenditures for equipment.

not all noble metals

Yet another object is to provide a process for nucleating plastic surfaces with a **noble metal** without the generation of toxic or otherwise dangerous vapors.

Thus, Kunzig is specifically directed to a palladium system. See, for instance, Kunzig at column 3.

In contrast, Feldstein reports use of copper, nickel or cobalt. See Feldstein at column 3, lines 20-30.

The cited documents fail to teach other aspects of Appellant's claimed invention.

Thus, claims 4, 5, and 6 are each separately patentable for the above-stated reasons and fail to teach or suggest the processes of claim 1 or 2 where the metal activator is silver, cobalt, ruthenium, cerium, iron, manganese, nickel, rhodium or vanadium.

Claims 18 through 22 specifically recite that the metal activator comprises silver (II). Nowhere do the cited documents mention silver (II).

In the Office Action, the following is stated with respect to the claimed silver (page 3 of the Office Action):

With respect to the use of silver II vs. silver I, it is the Examiner's position that one skilled in the art would have had a reasonable expectation of achieving similar success regardless of the valence of the catalytic silver as long as the silver is reduced to a zero valence state, i.e. metallic, so as to achieve a catalytic state.

Respectfully, that position does not withstand scrutiny. No citation has been provided to support that position, i.e. the position is completely unsubstantiated. Accordingly, it can not be relied upon. See Manual of Patent Examining Procedure §2143.03 ("To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art.").

Claims 23 through 27 recited that the metal activator comprises one or more of ruthenium, cerium, manganese, rhodium or vanadium. Again, those materials are not disclosed in the cited documents and the rejection should be withdrawn.

Claims 28 through 34 each call for a first step of oxidizing an aqueous solution comprising a metal activator. The cited documents do not mention or otherwise suggest such an oxidation step.

SUMMARY

Therefore, for the foregoing reasons, it is respectfully requested that the Board reverse the final rejection in this application.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'P. Corless', written over a horizontal line.

Peter F. Corless (Reg. 33,860)
EDWARDS & ANGELL, LLP
Dike, Bronstein Roberts & Cushman IP Group
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APPENDIX

1. A process for metal deposition, the process comprising providing an aqueous solution comprising a non-colloidal metal activator, contacting a part to be plated with the aqueous solution of the metal activator for a time sufficient for the metal activator to adsorb onto the part, contacting the part with a reducing agent capable of reducing the metal activator to a lower oxidation state, and metal plating the part by contact with a plating solution.

2. A process for electroless metal deposition of an organic resin part, comprising etching the part with reactive hydroxyl species while catalyzing the part with a non-colloidal electroless metal plating catalyst, and metal plating the part by contacting the part with an electroless metal plating solution.

3. The process of claim 2 wherein the reactive hydroxyl species are generated by a metal activator.

4. A process of claim 1 or 3 wherein metal activator is silver, cobalt, ruthenium, cerium, iron, manganese, nickel, rhodium, or vanadium.

5. A process of claim 1 or 3 wherein the metal activator is silver.

6. A process of claim 1 or 3 wherein the metal activator is cobalt.

7. A process of claim 1 where the part to be plated is an organic plastic.

8. A process of claim 1 wherein the part to be plated is a printed circuit board or an EMI substrate.

9. A process of claim 1 where the metal activator is present in a concentration of from 0.01 to 2.0 moles per liter of solution.

10. A process of claim 1 where the reducing agent is selected from the group consisting of a phosphite, a hydride, a borane, a borohydride, formaldehyde or a thionite.

11. A process of claim 1 where the plating solution is an electroless copper plating solution.

12. A process of claim 1 wherein the metal activator is oxidized electrochemically and the solution containing the oxidized metal substrate is exposed to the part, and the metal activator is then reduced.

13. The process of claim 1 wherein a plating catalyst separate from the metal activator is not employed, and/or chromic acid or permanganate treatment of the part is not employed.

14. The process of claim 1 where the part to be plated is composed of acrylonitrile, butadiene styrene, polyamide, epoxy, polycarbonate, polyetherimide, or blends thereof.

15. The process of claim 2 wherein the part to be plated is an organic plastic.

16. The process of claim 2 wherein the part to be plated is a printed circuit board or an EMI substrate.

17. The process of claim 2 where the part to be plated is composed of acrylonitrile, butadiene styrene, polyamide, epoxy, polycarbonate, polyetherimide, or blends thereof.

18. A process for metal deposition, the process comprising providing an aqueous solution comprising a metal activator that comprises silver (II), contacting a part to be plated with the aqueous solution of the metal activator for a time sufficient for the metal activator to adsorb onto the part, contacting the part with a reducing agent capable of reducing the metal activator to a lower oxidation state, and metal plating the part by contact with a plating solution.
19. A process of claim 18 where the part to be plated is an organic plastic.
20. A process of claim 18 wherein the part to be plated is a printed circuit board or an EMI substrate.
21. A process of claim 18 wherein the part to be plated is composed of acrylonitrile, butadiene styrene, polyamide, epoxy, polycarbonate, polyetherimide, or blends thereof.
22. A process of claim 18 wherein the metal activator is oxidized electrochemically and the solution containing the oxidized metal substrate is exposed to the part, and the metal activator is then reduced.
23. A process for metal deposition, the process comprising providing an aqueous solution comprising a metal activator that comprises one or more of ruthenium, cerium, manganese, rhodium or vanadium; contacting a part to be plated with the aqueous solution of the metal activator for a time sufficient for the metal activator to adsorb onto the part; and contacting the part with a reducing agent capable of reducing the metal activator to a lower oxidation state, and metal plating the part by contact with a plating solution.
24. A process of claim 23 where the part to be plated is an organic plastic.

25. A process of claim 23 wherein the part to be plated is a printed circuit board or an EMI substrate.

26. A process of claim 23 where the part to be plated is composed of acrylonitrile, butadiene styrene, polyamide, epoxy, polycarbonate, polyetherimide, or blends thereof.

27. A process of claim 23 wherein the metal activator is oxidized electrochemically and the solution containing the oxidized metal substrate is exposed to the part, and the metal activator is then reduced.

28. A process for metal deposition, comprising
oxidizing an aqueous solution comprising a metal activator,
contacting a part to be plated with the aqueous solution of the oxidized metal activator for a time sufficient for the metal activator to adsorb onto the part; and
contacting the part with a reducing agent capable of reducing the metal activator to a lower oxidation state, and metal plating the part by contact with a plating solution.

29. The process of claim 28 wherein the metal activator comprises silver.

30. The process of claim 28 wherein the metal activator comprises cobalt

31. The process of claim 28 wherein the metal activator comprises ruthenium, cerium, iron, manganese, nickel, rhodium or vanadium.

32. A process of claim 28 wherein the part to be plated is an organic plastic.

33. A process of claim 28 wherein the part to be plated is a printed circuit board or an EMI substrate.

34. The process of claim 28 wherein the part to be plated is composed of acrylonitrile, butadiene styrene, polyamide, epoxy, polycarbonate, polyetherimide, or blends thereof.